AMENDMENTS TO THE SPECIFICATION:

Please amend the paragraph beginning at page 1, line 2, as follows:

The invention relates to a frequency tracking device for a receiver of a ~~multi-carrier~~ multi-carrier communication system. The frequency tracking device evaluates and corrects frequency deviations which are introduced into multi-carrier symbols when they are transmitted between a transmitter multi-carrier filter bank and a receiver multi-carrier filter bank. These multi-carrier symbols are generated in the transmitter and are decoded in a receiver by using multi-carrier modulation/demodulation techniques.

Please replace equation (1) beginning at page 5, line 17, as follows:

$$\chi_{rec,n}(i) = d_n(i)C_n(i)e^{ji(N+G)\Delta\varphi}Si\left(N\frac{\Delta\varphi}{2}\right) + \underbrace{ICI_n(i) + n_n(i)}_{n'_n(i)} \quad (1)$$

Please replace equation (6) beginning at page 9, line 26, as follows:

$$\Phi_{est,1}(i) = \frac{1}{N_{used}}\sum_{n=0}^{N_{used}-1}\arg\{x_{rec,n}(i)(d_{dec,n}(i)C_{est,n}(i))^*\} \quad (6)$$

Please amend the paragraph beginning at page 10, line 19, as follows:

A second example to determine the phase estimate ~~ɵ~~ $\underline{\Phi}_{est,2}(i)$ is a correlation of the received data of all sub-carriers with the decided data and the channel coefficients of all (used) sub-carriers. This second type of phase estimate can be calculated in accordance with the following equation:

Please replace equation (7) beginning at page 10, line 24, as follows:

$$\Phi_{est,2}(i) = \arg\left\{\sum_{n=0}^{N_{used}-1} x_{rec,n}(i)(d_{dec,n}(i)C_{est,n}(i))^*\right\} \quad (7)$$

Please amend the paragraph beginning at page 11, line 6, as follows:

A third example for determining a phase estimate ~~θ~~ $\underline{\Phi}_{est,3}(i)$ uses received pilot data together with the channel coefficients and the sent pilot data. For one OFDM symbol the result is averaged over all pilot carriers N_{pilot} of that symbol. The third example of the phase estimate is calculated in accordance with the following equation:

Please replace equation (8) beginning at page 11, line 12, as follows:

$$\Phi_{est,3}(i) = \frac{1}{N_{pilot}} \sum_{n=0}^{N_{pilot}-1} \arg\{x_{rec,n}(i)(p_n(i)C_{est,n}(i))^*\} \qquad (8)$$

Please amend the paragraph beginning at page 11, line 15, as follows:

The following fourth example of a phase estimate ~~θ~~ $\underline{\Phi}_{est,4}(i)$ is using the received pilot data in a correlation with the channel coefficient and the sent pilot data, similarly as was done for the data symbol evaluation in equation (7). That is, a correlation of the received pilot data with the channel coefficient and the sent pilot data can be calculated in accordance with the following equation:

Please replace equation (9) beginning at page 11, line 22, as follows:

$$\Phi_{est,4}(i) = \arg\left\{ \sum_{n=0}^{N_{pilot}-1} x_{rec,n}(i)(p_n(i)C_{est,n}(i))^* \right\} \qquad (9)$$

Please amend the paragraph beginning at page 12, line 12, and continuing to page 13, line 5, as follows:

Fig. 2 shows a first example of a correction unit 13 arranged upstream of the receiver multi-carrier filter bank 8. On the basis of the frequency deviation estimate $f_{off,est}$ ~~(~~determined by using equation (5) and the sample index (k) within the multi-carrier symbol each received multi-carrier symbol is rotated with a different phase shift. That is, in Fig. ~~1~~ 2 the correction of the offset is performed in a feedback loop before the FFT unit 8. Such type of correction is used in the aforementioned patent documents. In fact, this type of correction is a straightforward rotation of each incoming sample of the i-th multi-carrier symbol with a value which has been obtained from the offset estimates of the symbols at an adjustment time interval before. That is, since the multi-carrier symbols arrive as sets of N multi-carrier symbols at each multi-carrier symbol duration, the evaluator 14 operates on the set of multi-carrier symbols received at a last symbol duration and the correction with the frequency offset estimation $f_{off,est}$ is carried out on the next set of arriving multi-carrier symbols.

Please amend the paragraph beginning at page 14, line 1, as follows:

As can be seen from equations (6), (8), the phase estimates ~~⊖~~$\underline{\Phi}_{est,1}$ and ~~⊖~~$\underline{\Phi}_{est,3}$ are based on the summing up of the arguments of the received data with their decided data corrected by the channel coefficients (8) $X_{rec,n}(i)$ denotes the received pilot data on the n-th sub-carrier of the i-th symbol. Since the first and third examples of the phase estimates therefore do not process probability information, in frequency selective environments the data transmitted on the sub-carriers with small channel coefficients (where noise badly distorts the received signal), is equally weighted as the data on sub-carriers with large channel coefficients, where the influence of the noise is small and

where thus, in case of the example 1, false decisions are less likely. Since the second and fourth phase estimates are based on a processing of probability information and inherently weight the sub-carriers with the channel coefficients, the performance can be improved. Although sub-carriers with small channel coefficients are not weighted as much, they can distort the phase estimate due to false decisions in case of a decision directed approach in the second example.

Please amend the paragraph beginning at page 27, line 16, as follows:

In step S4 the evaluator BVAL determines on the basis of the M selector sub-carriers and the corresponding M channel coefficients an estimate $\boxminus\underline{\Phi}_{cst,off}$ of the frequency deviation f_{off} introduced in the multi-carrier symbols. For the evaluation process in the evaluator EVAL any of the above-mentioned four examples for providing phase estimates, $\boxminus\underline{\Phi}_{est,1}$, $\boxminus\underline{\Phi}_{est,2}$, $\boxminus\underline{\Phi}_{est,3}$, $\boxminus\underline{\Phi}_{est,4}$, as described with equations (6), (7), (8). (9) can be used. Whilst the first and second example evaluation processes in accordance with equations (6), (7) are a decision directed evaluation, the third and fourth example evaluation in accordance with equations (8), (9) are a pilot carrier aided evaluation for the M sub-carriers, i.e. they require the knowledge of the pilot symbols p_n. However, as such pilot symbols are output by the FFT filter bank 8 just as any other data symbol and therefore the selector SEL must only be provided with the indices of the sub-carriers on which the pilot symbols are transmitted. Thus, the selector SEL can also select only from the number of use pilot symbols $N_{used,pilot}$ a number of M_{pilot} pilot sub-carriers in accordance with the corresponding largest channel coefficients. In case of pilot aided evaluation the sub-carriers should only be selected if the number of available pilots is large enough and when the number of pilots is small all pilot carriers should be used to ensure a good averaging process.

Please amend the paragraph beginning at page 28, line 27, and continuing to page 29, line 19, as follows:

In step S5 the corrector CORR performs a correction of the frequency deviation f_{off} on the basis of the frequency deviation estimate $f_{off,est}$ which is based on the phase estimate determined by the evaluator EVAL (see the above equation (5)). As explained above with reference to Fig 4-1 the corrector CORR can perform a correction at the input or the output of the FFT filter bank 8. If a correction CORR1 is carried upstream of the FFT filter bank 8, then each received multi-carrier symbol is rotated with a different phase shift depending on the frequency deviation estimate $f_{off,est}$ and the sample k within the multi-carrier symbol since, as explained above with reference to equation (1), in the time domain each time domain sample k is rotated by $e^{jk\underline{\Delta\phi}}$ where k is the sample index. In case that the evaluator EVAL and the selector SEL perform a separate evaluation/selection process for a pilot carrier aided evaluation and a decision directed evaluation, two different phase estimates and consequently two different frequency deviation estimates are determined and thus the corresponding pilot multi-carrier symbols and the other multi-carrier symbols will be corrected on the basis of the respective frequency deviation estimate.